MEDIUM DISPENSER

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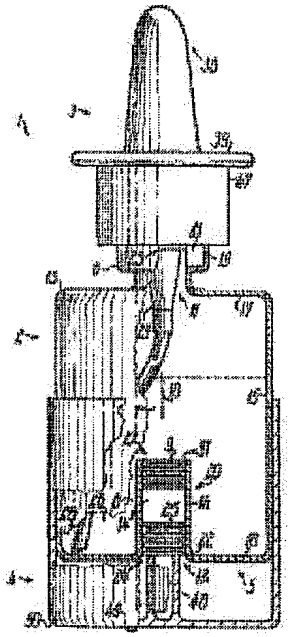
Abstract of **JP 2001062357 (A)**

PROBLEM TO BE SOLVED: To facilitate a one-handed operation by providing a dispenser which works in such a manner that two volumes of media are mutually separated and held and later the identical media or the media of different collective sets are permitted to be discharged so that composite droplets are discharged in a single administration. SOLUTION: The unit 2 of the dispenser 1 is equipped with a reservior unit 5 and a base body 6, to which a first and a second discharge unit 11, 12 are attached individually. In addition, the base body 6 is equipped with two reservior spaces 13, 14 integrally formed in one piece and an independent housing 29 for a pump 11.; A first medium in the first reservior space 7 of the base body 6 and a second medium in the second reservior space 8 of the reservior unit 5 are mixed and the mixture is continuously discharged from the first reservior space 13 by a pump in a discretely administered dose. Thus it is easy to operate the dispenser one-handedly with ample handling freedom.



CITED REFERENCE 1

【外国語明細書】

1 Title of Invention

Media Dispenser

2 Claims

1. A dispenser for discharging media comprising:
a base body (6):
a reservoir unit (5) retained on said base body (6) and including first and second reservoir spaces (7, 8) for storing media, namely a first medium and a second medium;
merging means (27) for bringing the media together, and
a discharge unit (11) including a pump for discharging at least one of the media from a medium outlet (37),
wherein said base body (6) includes a mounting fixture (21) for fixing said discharge unit (11), said second medium space (8) connecting to said reservoir unit with a spacing from said mounting fixture (21).

2. The dispenser according to claim 1, wherein said discharge unit (11) and said pump are commonly preassembled separate from said reservoir unit (5) to be useable for pump and discharge operation including a pump stroke and a return stroke substantially as long as said pump stroke.

3. The dispenser according to claim 1 or 2, wherein said merging means (27) are located upstream of said medium outlet (37) within said reservoir unit (5), said merging means including a mixing chamber (27) for mixing the media, said mixing chamber being inherently dinensionally rigid, said reservoir unit (5) including reservoirs (13, 14), namely a first reservoir (13) with said first reservoir space (7) and said mixing chamber (27) and a second reservoir (14) with

said second reservoir space (8) for the second medium, said second reservoir (14) being separate from said first reservoir (13), a closure (9) directly adjoining both said first and second reservoirs (13, 14) and being openable, means being included for preventing stress on said closure (9) while connecting said second reservoir (14) to said first reservoir (13), said first reservoir (13) including a first body opening and a second body opening apart from said first body opening, said second reservoir (14) including a third body opening (31) through which the second medium is expelled toward said merging means (27), a closure member (52) including said closure (9) in one part sealingly closing both said second and third body openings, said third body opening (51) being openable while said second body opening remains sealingly closed, said discharge unit (11) closing said first body opening.

4. The dispenser according to claim 1 or 2, wherein said reservoir unit (5) includes a reservoir body (14) bounding said second reservoir space (8), said reservoir body (14) including a bottom wall (25) and a body opening (51) spaced from said bottom wall (25), said bottom wall (25) being located closer to said mounting fixture (21) than said body opening (51), said reservoir body (14) freely protruding toward said mounting fixture (21).

5. The dispenser according to claim 1 or 2 and further including a reservoir body (14) including a bottom wall (25) and a body opening (51) spaced from said bottom wall (25), wherein said reservoir body (14) internally bounds said second reservoir space (8), said body opening (51) being closed by a closure member (9) made in one part, said bottom wall (25) and said closure defining bounds bounding said second reservoir space (8), for opening said body opening

(51) at least one of said bounds being flexibly deformed while said bottom wall (25) moves toward said mounting fixture (21), said discharge unit (11) including a riser tube (28) projecting towards said closure member (9) and located directly adjacent to an outside of said reservoir body (14).

6. The dispenser according to claim 5, wherein when said body opening (51) is opened said closure member (9) remains fixed to said reservoir unit (5), said reservoir body (14) including a reservoir jacket (16) and a reservoir bottom (25) fixed to said reservoir jacket (16), means being included for submerging said reservoir body (24) into the first medium with said body opening opened, said submerging means including a handle (49) for entirely pushing said reservoir body (14) into the first medium, said reservoir body (14) being fixed to said closure member (9) with a snap fit, said body opening (51) being openable by actuating said handle (49).

7. The dispenser according to claim 1 or 2 and further including a reservoir opening (51) through which the second medium is released toward the first medium, wherein a closure member (9) is included and engages inside said body opening (51), means (48) being included for radially constricting said closure member (9).

8. The dispenser according to claim 1 or 2 and further including an inverting body (14) turned inside out by an actuator (49), wherein said inverting body (14) is resiliently deformed for being submerged into at least one of the first and second media.

9. The dispenser according to claim 1 or 2 and further including a blister containment bounding said second reser-

voir space (8), wherein said blister containment includes a closure member (9) separating the second medium from the first medium, an actuator (49) being included for opening said closure member (9) by bendingly deforming said actuator (49), said blister containment including a bottom wall (25) opposing said closure member (9) and including said actuator (49).

10. The dispenser according to claim 1 or 2, wherein a vent is included for internally venting said merging means (27), means being included for preventing ingress of germs into at least one of

said merging means (27),
said first medium space (7), and
said second medium space (8).

3 Detailed Description of Invention

The invention relates to a dispenser for discharging a single medium or two or more media in sequence or commonly. Each of the media may be liquid, pasty, powdery, a tabletted solid or, however, also gaseous. The media may be discharged via separate outlet ducts respective outlets or via a common outlet duct and may be intermingled either with the outlet flow or prior to discharge flow. In all actuating actions the dispenser permits free handling as well as actuation single-handedly. The dispenser is composed of plastic, particularly injection molded parts and may also contain glass parts.

An object is to provide a dispenser which obviates the drawbacks of known configurations and which permits discharge particularly of two medium volumes of the same or of differing aggregate conditions held entirely separated from each other and then discharged multiply in single doses. Another objects is that each medium is decantable or suckable into a metering chamber prior to discharge before then being discharged directly from this metering chamber. A further objects is to permit thorough mingling or easy amalgamating of the media. Still another object is a compact configuration of the dispenser which is easy to handle and simple to manufacture and assemble. An object is also to protect the media from germ contamination prior to discharge.

According to the invention the dispenser comprises a base body including a reservoir unit to be provided with a discharge unit for repeated output of the medium dosages from the reservoir unit. The discharge unit could be simply a pour out port for emptying the reservoir unit or could be some other delivery unit to be fitted preassembled to the base body, but is expediently a pump.

If the media are to be simply discharged completely from the reservoir unit in one go, a pump suffices having a single stroke direction; but where multiple dosis discharge is required the pump executes either an incremental stroke progressing in the cited direction or alternating advance and return strokes by which the metering or pump chamber is first emptied and then refilled with the medium from the reservoir unit. The pump may also be formed by a resilient squeeze bottle bounding the reservoir space(s) or mixing chambers for the two media.

The mixing chamber may be separate from both reservoir spaces, one only thereof or both in common, a good rinsing of these spaces then being provided by mixing.

The reservoir spaces are separated from each other only by an integral closure member. On opening this closure member, which is flexible on bending or pressure stress, each medium is able to flow from its reservoir space into all other reservoir spaces.

A reservoir space may be turned inside out into a convex shape and then protrude or submerge into another reservoir space, as a result of which the pressure in this other reservoir space is increased which also enhances initial activation or priming of the discharge unit.

The necks of a reservoir have mounting fixtures for counter-members, such as a snap ring, a metallic crimp ring, a threaded member or the like. The necks may be identical so that both closure members are to be sealingly secured optionally to each of these necks.

Example embodiments of the invention are explained in more detail in the following and illustrated in the drawings,

The dispenser 1 shown in Figs. 1 to 8 has three dimensionally rigid units 2 to 4, each pair of which is movable relative to each other irrespective of the third axially and/or rotatively. Unit 2 has a reservoir unit 5 and a base body 6 which are dimensionally rigid. Base body 6 bounds a first reservoir space 7 and unit 5 bounds a multiply smaller second reservoir space 8. Both spaces 7, 8 border remote faces of a closure 9. Closure 9 may be integral. All of the cited assemblies are

located in a common longitudinal center axis 10 to which the motions of units 2 to 4 are parallel.

First and second discharge or delivery units 11, 12 are separately secured to base body 6. Units 11, 12 can optionally be fixed commonly or independently. In Fig. 1 both units are thrust piston pumps 11, 12 having separate piston units. Base body 6 has two integral reservoir bodies or reservoirs 13, 14, and separate housing 29 of pump 11. In Fig. 1 body 14 provides the housing of pump 12.

The constantly wide reservoir jacket 15 of reservoir body 13 is coaxial with reservoir jacket 16 of pump housing 14. Jacket 15 is made in one part with one of the pump housings of pumps 11, 12 . Each end of jacket 15 adjoins an annular, planar end wall 17 or 18 forming cover wall 17 and wall or bottom 18 of first reservoir 13. Wall 17 adjoins a receptacle neck 19 oriented exclusively outwards.

Bottom 18 adjoins a neck 20 protruding into space 7 and narrower than belly 15. Neck 20 may also protrude partly or totally outwards. Each neck bounds a receptacle or body opening. Neck 19 forms a mounting fixture 21 for rigidly fixing housing 29. A corresponding mounting fixture or fastener member 22 is also provided for housing 14 of pump 12. Member 22 is an integral, angularly annular transition between jacket 16 and bottom 18. Parts 13 to 22 are commonly made in one part.

Pump 11 and its housing 29 are included in a closure unit 23 sealingly barring neck 19 against penetration of media. Closure 9 and a reservoir bottom or further closure 25 are included in a closure unit 24 sealing off neck 20 from loss of medium to without or from media exchange between spaces

7, 8. Closure 25 bounds space 8 commonly with closure 9 and jacket 16. Closure 25 extends into the plane of wall 18 and is of same configuration as closure 9 to thus being interchangeable therewith. Piston 25 forms the conveying member of pump 12, namely for both the medium in space 8 and piston 9. In the inital or rest position as shown in Fig. 1 piston 9 or 25 extends up to the associated end of jacket 16.

Jackets 15, 16 bound an annular space 26. By advance of piston 9 from jacket 16 into space 7 an outlet or transfer opening 51 is opened. Via this third body opening 51 the spaces 7, 8 are then connected into a common mixing chamber 27. Piston 9 is then freely movable in space 7 and forms a mixing or agitating member for the two media. The volume of chamber 27 equals that of space 7 and is smaller than the sum of spaces 7, 8.

After intermingling of the media by shaking the dispenser 1 the mixed medium is discharged by pump 11 through housing 29 and unit 3 in single doses each in a time sequence. Housing 29 protrudes by the majority of its length into space 7 and adjoins by its inner end a riser 28 such as an elastomeric riser tube which extends up to bottom 18 of space 26 so that it is only from this location that the medium is drawn out of unit 5.

Regarding the configuration of pump 11 and its fastening or connection to first reservoir or body 13 reference is made to the US-Patent No. 5,927,559, US-Patent No. 5,988,449, US-Patent No. 6,062,433, US-Patent No. 6,059,151 or to US-Patent application Serial No. 09/388517 and US-Patent application Serial No. 09/387124 as to how these features and effects are incorporated in the present invention.

Housing 29 bounds a pressure, metering and pump chamber 30 also bounded between the piston or piston lip of a piston unit 31 and an inlet valve 32 (Fig. 2). Unit 31 is part of unit 3 and has an outlet valve 33. One valve body is formed by the inner circumference of the resiliently shortenable piston whilst the other valve body is rigidly connected to the plunger stem. In the rest position as shown in Fig.2 a vent path between housing 29 and plunger stem is sealingly shut by a valve 34. One valve body thereof is formed by the outer circumference of the piston and the other valve body by an inner sleeve of a cover which together with a longer element bounding chamber 30 forms housing 29.

An outlet duct 35 connects downstream to valve 33 and is located entirely within the plunger stem. Duct 35 is provided with means for preventing ingress of germs. These means are directly adjacent to a medium outlet 37, namely an atomizing nozzle, and include a valve 36. Germicidal agents may also be incorporated in the walls bounding duct 35 or any of the other medium spaces. The movable valve body of valve 36 closes in the direction of the discharge flow, whilst the movable valve bodies of valves 32, 33 open in this direction. After opening of valve 33 valve 36 is opened by the medium pressure in duct 35 and is closed by spring force.

Outlet 37 is provided in the end face of a stud 38 for nostril insertion freely protruding beyond a laterally adjoining finger handle 39. Outlet 37 and stud 38 are coaxial with axis 10. For pressure compensation and for withdrawal of the medium from spaces 7, 8 a vent 40 is provided which solely passes a germ filter 41 to thus provide further means for preventing ingress of germs as discribed. The end cover of pump 11 comprises a protruding, annular flange 43. Filter 41 is axially tensioned and thereby variably compressed commonly

with an interposed seal 42 between flange 43 and the end face of neck 19 or mounting fixture 21. Rings 41, 42 thus sealingly connect to the outer circumference of housing 29.

Axial tensioning is done with a separate fastener 44, such as a crimp ring illustrated in Fig. 2 before and after tensioning on the left and right respectively. Member 44 supports with tensioning pressure on remote shoulder faces of members 21, 43 and is made of sheet metal. Venting can also flow through housing 29 and valve 34. The jacket of housing 29 is then penetrated by a venting port downstream of chamber 30, this port directly interconnecting the interior of the housing jacket and space 7.

Means or a lock 45 positively prevent parts 38, 39 from being withdrawn from the plunger stem or unit 2 although they are secured to the plunger stem only fictionally by a plug-in connection. A return spring 46 located within space 30 moves unit 3 over the return stroke until lock 45 abuts. Handle 39 is formed by the end wall of a cap 47 made in one part with stud 38. The jacket of cap 47 covers the freely protruding cover of housing 29 as well as parts 21, 23 and 41 to 45 permanently as a discharge and actuating head.

A ram shaft 48 is likewise provided for piston 25. Ram 48 is to be actuated manually by an actuator handle 49 facing away from handle 39 when the fingers of one hand simultaneously support spread out on handles 39, 49. Handle 49 is formed by the end wall of a cap 50, the jacket of which slides in snug contact on the outer circumference of jacket 15. The tubular ram 48 freely protrudes integrally from the bottom of cap 50. The free end of ram 48 contacts the outer end face of piston 25. End wall 17 located between handles 39, 49 could also

form a counterhold for actuating handle 49 to avoid actuation of pump 11 while space 8 is opened.

It may, however, also be an advantage when pump 11 is first actuated by handle 39 due to a sequence control up to the end position of its pump stroke, before pump 12 is actuated by handle 49 in this position so that on release of handles 39, 49 a suction stroke is instantly implemented and the medium is drawn out of chamber 27 into chamber 30. This sequence control may be achieved by the force needed to actuate pump 12 being greater than that for actuating pump 11. If pump 11 is to remain unactuated during hauling by pump 12, the actuating forces are selected correspondingly inverse.

In each of chambers 7, 8 one of the cited media may be stored. Space 8 is totally filled and space 7 is only partly filled up to the level below housing 29 as evident from Fig. 1. By simultaneous finger pressure against handles 39, 49 ram 48, piston 25 and the fill of space 8 firstly push closure 9 out of neck 20 until at the end thereof opening 51 is opened over the inner width of jacket 16 and until in further action the second medium of space 8 is ejected into space 7. Piston 25 then closes opening 51 like piston 9 previously and the bottom of the cap 50 abuts on bottom 18.

The media can then be intermingled homogenously with the assistance of stirring member 9 by shaking. Stem 48 does not perform a return stroke so that only handle 39 and not handle 49 remains shiftable relative to unit 2. By linearly shifting handle 39 opposite to the shifting direction of handle 49 in overcoming the force of return spring 46 chamber 30 is constricted and the medium contained therein compressed

until valve 33 opens. Valve 33 opens either due to the overpressure in chamber 30 or due to the piston abutting at the end of the pump stroke.

The medium emerges pressurized from chamber 30 through valve 33, flows through the inner circumference of the piston sleeve to valve 36 which it opens, before then emerging through outlet 37 atomized to the environment. On release of handle 39 unit 3 executes the return stroke. Thus on opening of valve 32 medium is sucked from chamber 27 into chamber 30. The next stroke cycle results in discharge of the next dose.

Fig. 3 illustrates units 12, 14 separate from body 13 and secured thereto by an adapter or annular flange body 52 commonly in one part with members 16, 25, 49. In addition neck 20 protrudes counter neck 19 outwards only beyond bottom 18 and comprises at the end or outer circumference a protruding fastener member 22 corresponding to member 21. An annular disk seal 53 is tensioned against the end face of sections 20, 22, integrally adjoins the upstream end of a jacket 54 and envelopes jacket 16 with a radial spacing. Thus sections 53, 54 provide a first closing section and closure 9 provides a second closing section while also providing means for preventing assembling stress for the closure.

Via a connection 55 the other or downstream end of jacket 54 adjoins axially spaced from seal 53 within neck 20 the inner end of jacket 16 and forms in the region of this connection 55 an annular hinge for turning reservoir or inverting body 14 inside out. Jacket 16 then forms an elongation of jacket 54 protruding into space 7. The inner bounds of second reservoir 14 then form its outer bounds which in turn bound annular space 26. Parts 16 and 53 to 55 are commonly in one

part. A sleeve- or cap-shaped, as well as separate, fastener 56 tensions elastomeric body 14, 52 against mounting fixture 22 and supports thereon via an annular, resilient snap connection 57 and on seal 53 with a butress 58, namely an annular end wall, located with spacings from and between its ends.

Closure 9 is a dimensionally rigid or resiliently bendable plate which by its outer circumference sealingly engages inside an annular groove at the inner circumference of jacket 16. The jacket of fastener 56 protrudes beyond reservoir 14 and handle 49 formed by reservoir bottom 25. Jacket 54 may be spaced from neck 20 by a gap or may sealingly contact the inner circumference thereof either with no tension or radially tensioned. Connection 57 automatically resiliently returns to its locking state when integral member 56 is shifted onto neck 20.

Body 14, 52 is bistable inherently or due to locking, namely in the rest position of Fig. 3 and in the inverted position which can be held by an additional snap fastener locking this end position. By finger pressure against handle or actuator 49 reservoir 14 is turned inside out, during which closure 9 snaps out of its anchorage so that opening 51 is opened. After being turned inside out chamber 27 is smaller than space 7 and after intermingling discharge is effected by pump 11.

Fig. 4 illustrates that instead of closure 9 the reservoir 14 is made separate from flange body 52 and the reversible jacket 59 is made in one part with closure 9. Closures 9, 25 are located inversely to the arrangement of Fig. 1. Closure of bottom 25 is fixedly or integrally connected to jacket 16 and is planar, pointed or conical. At the other end located

within sections 20, 52 the jacket 16 translates integrally into a constricted receptacle neck 61 including a fastener or snap member 62 to be fixed to sections 9, 52 by a snap connection 60. As a flat disk closure 9 then sealingly contacts the end face of neck 61 and integrally adjoins jacket 59. Jacket 59 includes at the inner circumference an annular snap groove for engagement of member 62. Jacket 59 may have the effect of jacket 16 of Fig. 3 and adjoins jacket 54 via an annular disk 55.

In this case handle 49 is formed by the outside of closure 9. Pressing handle 49 advances reservoir 14 into space 7 until the snap connection 60 is released and permits reservoir 14 to freely drop or submerge into space 7. Sections 9, 59 can then be turned inside out or remain in their second stable position inside space 7 while opening 51 bounded by neck 61 is free. In this case the volume of chamber 27 is smaller than the sum of volumes of spaces 7, 8 but larger than volume of the chamber 7.

The stirring member is formed in this case by reservoir 14, the space 8 of which forms part of the mixing chamber 27. Wall 58 is located here at the end of fastener 56 and axially adjacent to closure 9 or handle 49. Wall 58 comprises an opening for permitting passage of the users finger to be layed against handle 49.

In Fig. 5 closure 9 includes a stopple extending into neck 61 and sealingly contacting the inner circumference of the neck or of opening 51 by radial pressure. The stopple directly connects to end wall 55. Adjoining the outside of end wall 55 is a likewise integral further projection or mandrel which outwardly traverses the opening in wall 58 to form handle 49 outside of fastener 56. Wall 55 too, may sealingly contact

the end face of neck 61 or collar 62. In this case opening requires the handle 49 to be drawn axially outwards whereby wall 55 is able to enter the opening of wall 58 and whereby plug 9 is withdrawn from reservoir 14. Since reservoir 14 is exclusively fastened to body 52 via plug 9 it then becomes freely movable and opened in the kind already described.

However, closure 9 may also continue to support or aligne reservoir 14 even after communication between spaces 7, 8 has been established, as is indicated in dot-dashed lines in Fig. 5. Therefor plug 9 is correspondingly elongated and cooperates with the inner circumference of neck 61 as a valve, such as a slide valve. This valve may not only be openable, but also recloseable with handle 49 or by the resiliency of body 52 on release of handle 49.

The movable valve element or closure 9 has valve ducts, e.g. outer circumferential axial grooves which due to the opening motion emerge partially from opening 51 to establish the communication between spaces 7, 8. Reservoir 14 may then be firmly and frictionally reconnected with plug 9 and moves into space 7 on the return motion of body 52. The contact of collar 62 on wall 55 is thereby suspended. However reservoir 14 could also be prevented from executing this motion by a stopper or some other holding means. Bottom 25 is cross-sectionally outwardly convexely round or spherical, particularly semispherical.

Reservoir 14 of Fig. 6 underlies similar effects and is formed by a test glass with jacket 16 of constant width throughout. Like entire body 52 also closure 9 is hollow up to end wall 55 forming the inner end of stopple 9 and contacted on its inside by the inner end of sten 48. The outer end protrudes out of fastener 56 and carries handle 49. When

stem 48 is shifted inwardly it stretches closure 9 axially and thus provides means constricting the outer width of closure member 9. Thereby the retaining connection with reservoir 14 is suspended and reservoir 14 is freely transferred into space 7. In this case, as in Fig. 5, the mixing chamber is the same in size as the sum of spaces 7, 8.

In Fig. 7 the inner end 63 of stem 48 forms an acute angled cone self-lockingly engaging the blind hole of body 52 with radial tension. The hole extends up to wall 55. On pushing in stem 48 the section 63 widenes closure 9 with or without adjoining section 54. Thus the radial pressure against the inner circumference of neck 61 or 20 is effected. Retraction of stem 48 suspends this pressure to release reservoir 14. According to Figs. 3 to 7 only the movable parts of body 52 and reservoir 14 or stem 48 are included in unit 4. Body 52 could also be in one part with body 56.

The dispensers 1 according to Figs. 3 and 8 operate similarly except that in Fig. 8 reservoir 14 is formed by a foil blister containment incorporating creaseable foil walls 16, 25 which form a dish less than semispherical and translating integrally into a planar flange 62. The dish opening 51 including the annular flange plate 62 is covered by a planar film or foil 9 of metal or plastics which with seal 53 interposed supports against the end face of neck 20, 22 with that tension which is exerted by wall 58 directly on flange 62.

Bottom 25 or an adjoining actuating element forms handle 49 with which reservoir 14 is pushed toward space 7. Thereby closure 9 is torn open and the powder contained in space 8 enters into the liquid in space 7 while changing over to solution in the liquid. The tear tabs of closure 9 then

protruding into space 7 form guide faces which swirl the flow in chamber 27 when the dispenser is shaken. Reservoir 14 must not be elastomeric or positionally stable in the invertet position or returnable into the position shown in Fig. 8.

Outlet 37 is here oriented transverse or radial to axis 10. The outermost end of discharge head 47 forms handle 39. Fastener 44 is a plastic snap-action ring. Germ filter 41 is not assigned with a separate seal. Thus filter 41 exclusively and semi-permeably seals or permits no passage of liquid but only of air entering radially before then flowing axially between neck 19 and housing 29 into spaces 7, 8, 27 .

Devices 11, 12 are independently fastenable and non-destructively detachable to respectivley from unit 2 and reservoir 13 by fasteners 44, 56. Thereby reservoir 14 can be fastened as a preassembled unit also including body 52 or seal 53 and housing 56.

It will be appreciated that all features of all embodiments are interchangeable or supplementary to each other so that all passages of the description apply to all embodiments. The size relationships as illustrated are favorable. All cited effects and properties may be provided precisely as described, or merely substantially or approximately so and may also greatly deviate therefrom depending on the particular requirements.

Instead of a spray jet outlet 37 may output discrete droplets or a non-sprayed jet. Reservoir 13 or 14 may be made of glass instead of plastics. Reservoir 14 is also suitable for being primarily filled with a solution of a powder or some other temperature- or moisture-sensitive solid product in a liquid whereafter drying or freeze-drying is done. Thereby

closure 9 may already be connected to reservoir 14 as a unit which then, when filled with the dried substance is assembled with the dispenser or units 2, 6.

4 Brief Description of Drawings

Fig. 1 is a partially sectional view of a dispenser according to the invention.

Fig. 2 is an illustration similar to Fig.1 of a further example embodiment.

Fig. 3 is an illustration similar to Fig.1 of a further example embodiment.

Fig. 4 is an illustration similar to Fig.1 of a further example embodiment.

Fig. 5 is an illustration similar to Fig.1 of a further example embodiment.

Fig. 6 is an illustration similar to Fig.1 of a further example embodiment.

Fig. 7 is an illustration similar to Fig.1 of a further example embodiment.

Fig. 8 is an illustration similar to Fig.1 of a further example embodiment.

1 dispenser
5 reservoir unit
6 base body
7, 8 spaces
11 discharge unit
13 first reservoir
14 second reservoir
20 neck
21 mounting fixture
25 bottom wall
29 housing
32 inlet valve
33 outlet valve
35 duct
43 flange
47 handle
51 body opening

Fig.1

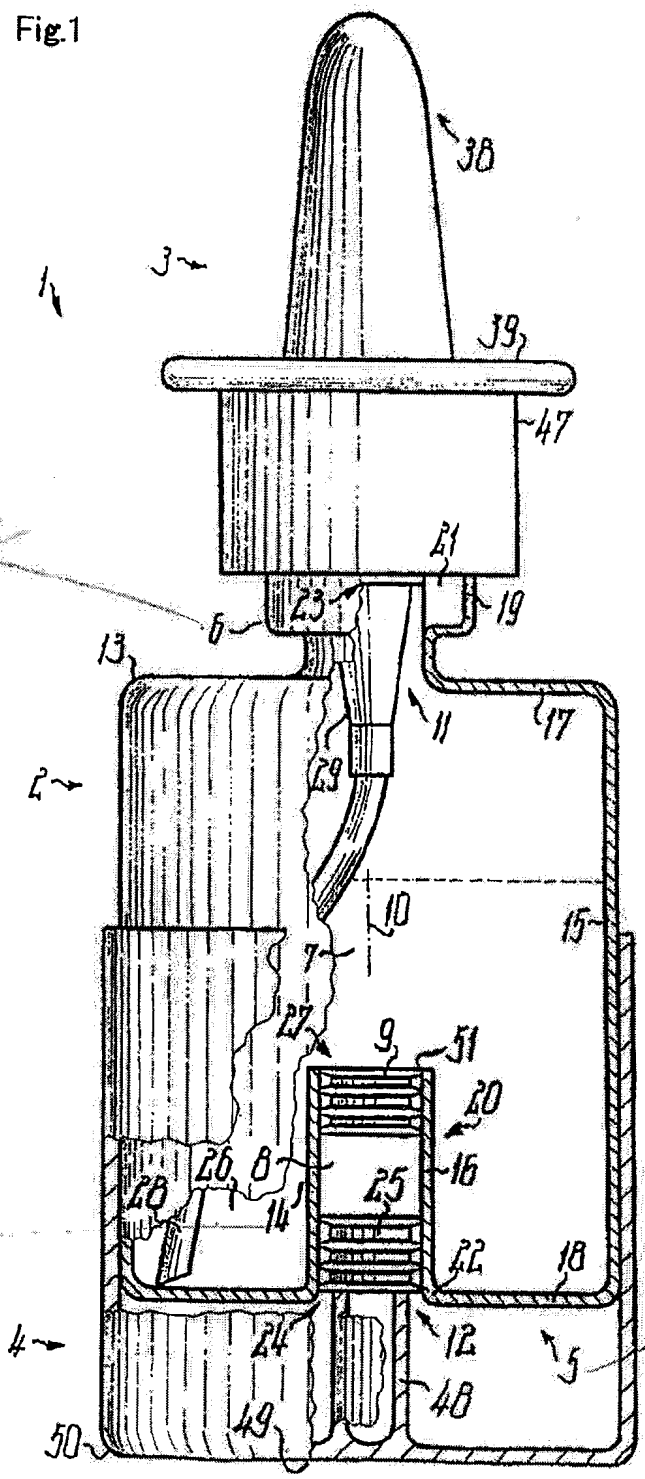

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Fig.2

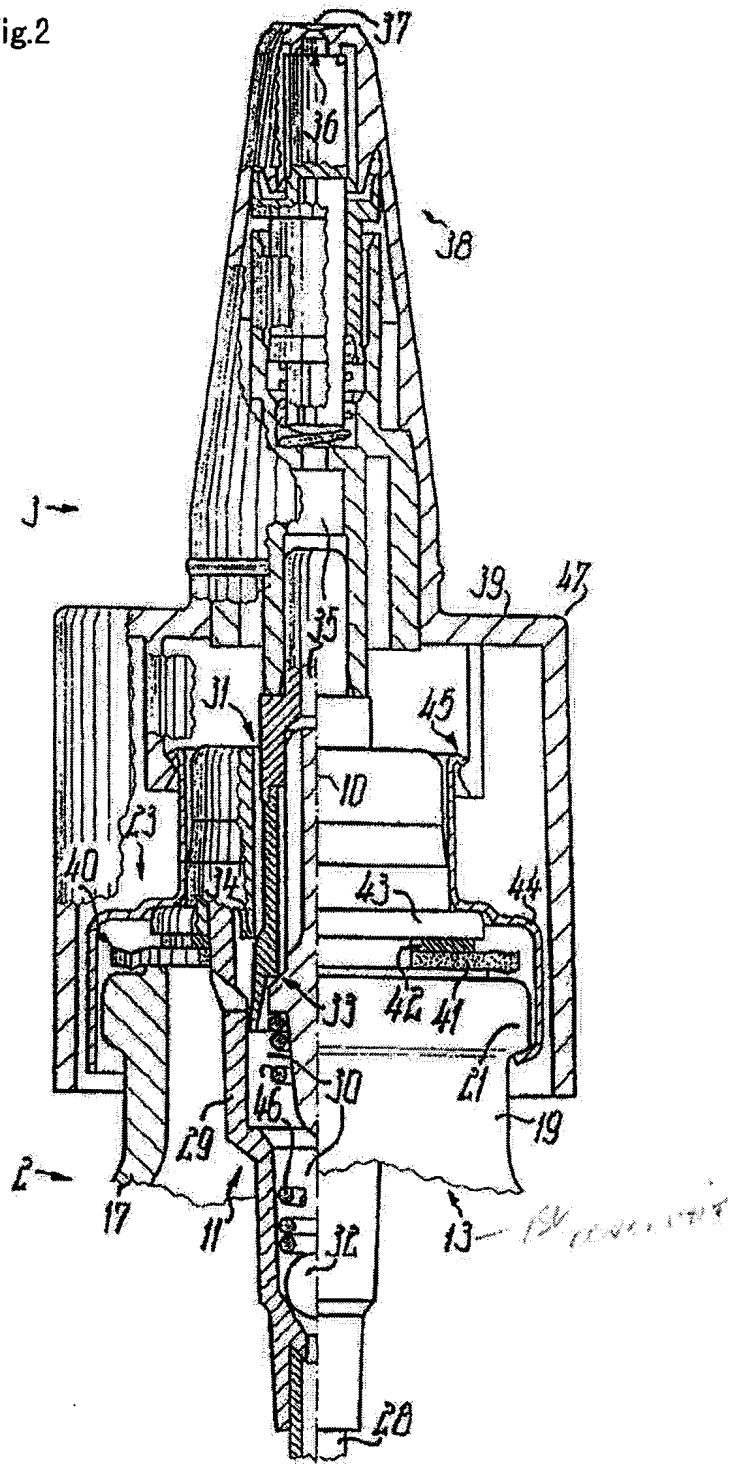
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Fig.3

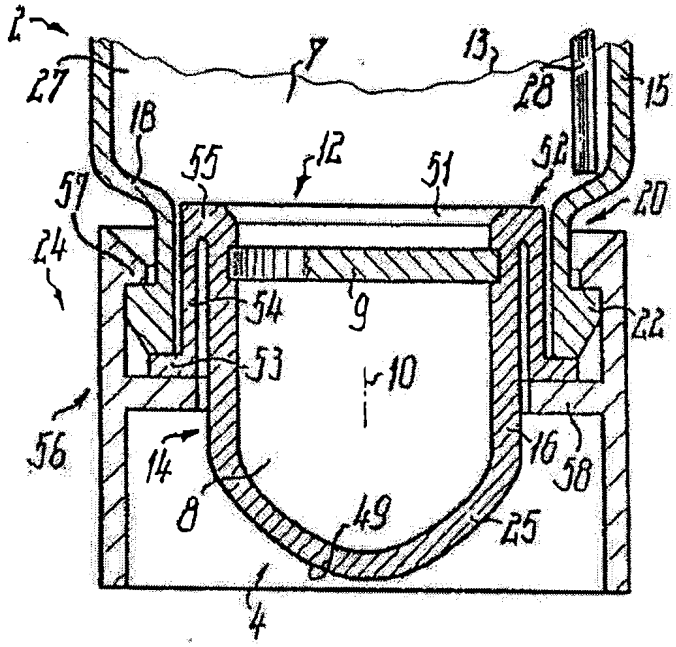

Fig.4

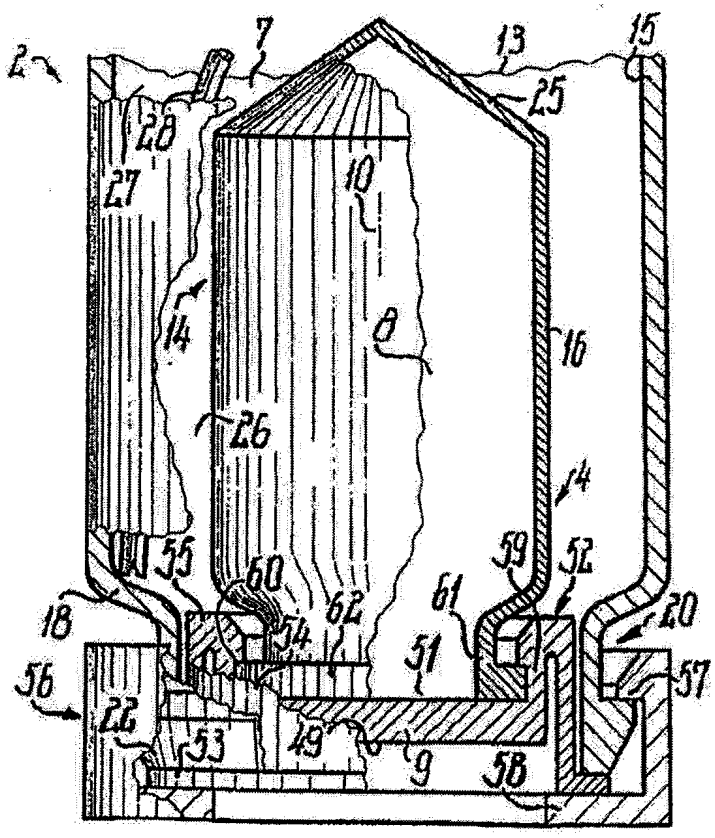
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Fig.5

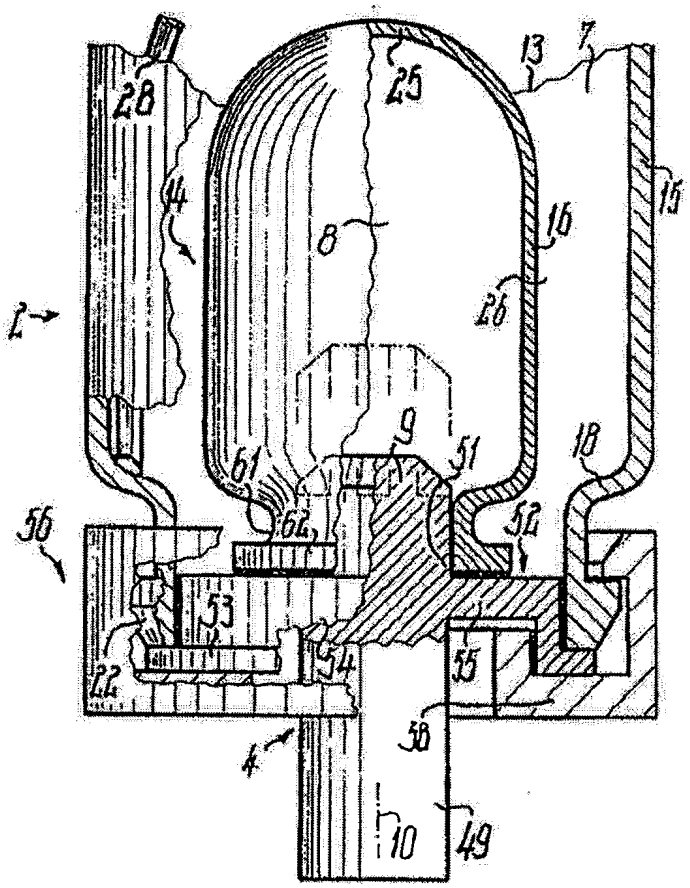


Fig.6

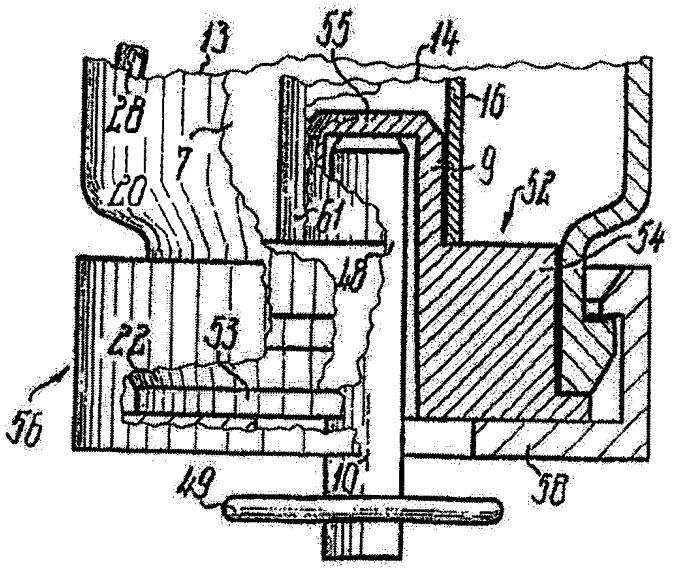


Fig.7

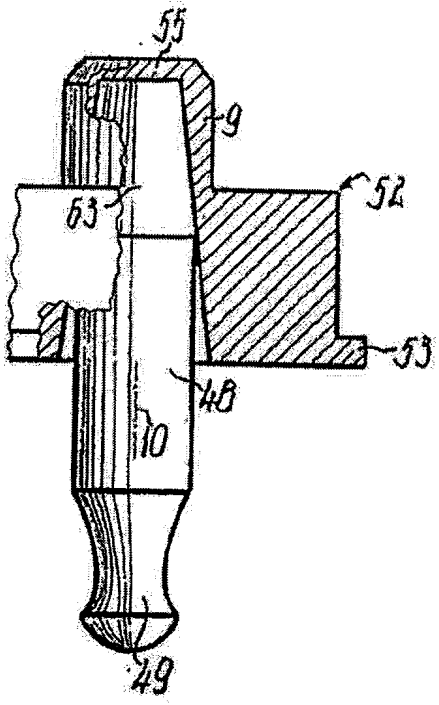
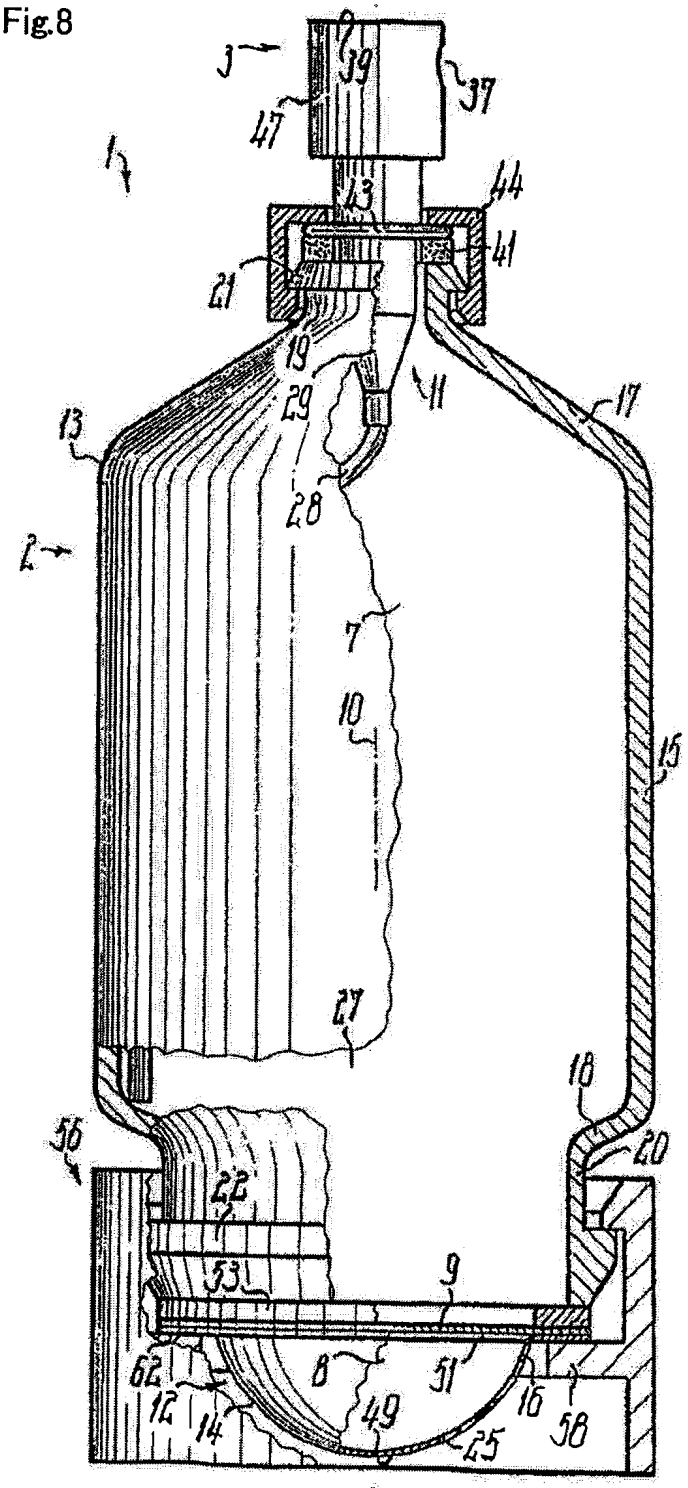


Fig.8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1 Abstract

A first reservoir (13) includes two necks (19, 20). One neck (19) carries a thrust piston pump (11) including a medium outlet (37). The other neck (20) carries a closed second reservoir (14) including a second medium. When the closure (9) is opened the second medium is transferred into the first reservoir (13) where it is mixed with or dissolved in the first medium. Thereafter the mixed medium can be discharged by the dosing pump (11) from the first reservoir (13) in discrete doses in sequence. Thus the media are stored binary and not merged until being discharged.

2 Representative Drawing

Fig. 1